CLAIM AMENDMENTS

1. (Currently Amended) A compressor for compressing gas having denser, non-gaseous impurities entrained therein, the compressor comprising a rotary machine having a rotor, a stator with an inner wall, and blade rows on the rotor and stator that impart a high swirl component to ~~gases~~ gas flowing through the machine from a gas intake side of the machine to a gas outlet side thereof so that the denser impurities are deflected radially outwards by ~~centripetal~~ centrifugal action onto the inner wall of the stator of the machine, wherein the inner wall of the stator is provided with a guide surface along which any impurities separated by the ~~centripetal~~ centrifugal action from the main gas stream are entrained by the main gas stream and guided to flow from the gas intake side to the gas outlet side of the machine, the guide surface being radially stepped to resist only reverse flow of the separated impurities back towards the gas intake side of the machine and being operative at the downstream end of the machine to discharge the separated impurities back into the main gas stream for the impurities to exit from the machine with the main gas stream.

2. (Original) A rotary machine as claimed in claim 1, wherein the guide surface is rotationally symmetrical about the axis of the rotor.

3. (Original) A rotary machine as claimed in claim 1, wherein the guide surface is formed by at least one groove in the inner wall of the stator that only extends around part of the circumference of the stator.

4. (Original) A rotary machine as claimed in claim 3, wherein the groove is arranged at the lower end of the stator such that separated impurities collect in the groove by the action of gravity.

5. (New) A rotary machine as claimed in claim 1, wherein the rotor has an outer wall that does not vary abruptly in diameter from the gas intake side to the gas outlet side.

6. (New) A rotary machine as claimed in claim 1, wherein the guide surface is formed by at least one groove in the inner wall of the stator, the groove having a bottom surface, and the blades of

the rotor clear the bottom surface of the groove by a distance greater than the depth of the groove.

7. (New) A downhole compressor for installation in a well, the compressor comprising a rotary machine having a rotor, a stator with an inner wall, and blade rows on the rotor and stator that impart a high swirl component to gas flowing through the machine from a gas intake side of the machine to a gas outlet side thereof so that the denser impurities are deflected radially outwards by centrifugal action onto the inner wall of the stator of the machine, wherein the inner wall of the stator is provided with a guide surface along which any impurities separated by the centrifugal action from the main gas stream are entrained by the main gas stream and guided to flow from the gas intake side to the gas outlet side of the machine, the guide surface being radially stepped to resist only reverse flow of the separated impurities back towards the gas intake side of the machine and being operative at the downstream end of the machine to discharge the separated impurities back into the main gas stream for the impurities to exit from the machine with the main gas stream.

8. (New) A compressor as claimed in claim 7, wherein the guide surface is rotationally symmetrical about the axis of the rotor.

9. (New) A compressor as claimed in claim 7, wherein the guide surface is formed by at least one groove in the inner wall of the stator that only extends around part of the circumference of the stator.

10. (New) A compressor as claimed in claim 9, wherein the groove is arranged at the lower end of the stator such that separated impurities collect in the groove by the action of gravity.

11. (New) A compressor as claimed in claim 9, wherein the compressor is oriented with the rotor rotatable relative to the stator about a substantially horizontal axis, such that the stator has an upper region and a lower region, and the groove is arranged at the lower region of the stator such that separated impurities collect in the groove by the action of gravity.

12. (New) A compressor as claimed in claim 7, wherein the rotor has an outer wall that does not vary abruptly in diameter from the gas intake side to the gas outlet side.